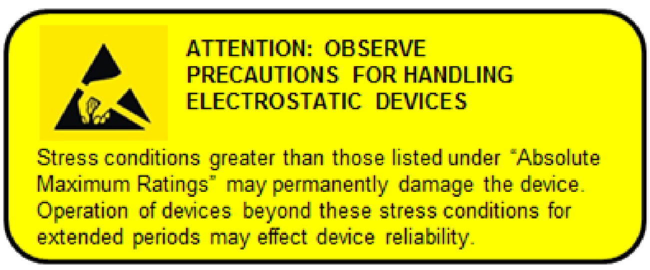
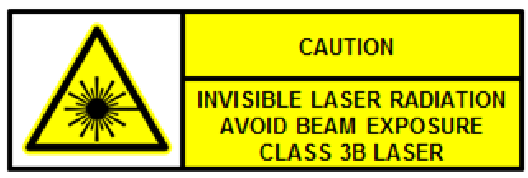
FEATURES

- Wide operating temperature from -40°C to 85°C
- High-speed operation up to 14Gbps
- Top-emitting
- Single channel
- Flip-chip and wire bond compatible
- MIL-SPEC qualified

ABSOLUTE MAXIMUM RATINGS

Operating Temperature Range	-40 to 85°C
Storage Temperature Range	-65 to 150°C
Solder Temperature	210˚C for 10s
Electro-Static Damage Threshold (Human Body Model)	200V
Reverse Voltage	8V
Continuous Forward Current	12mA





OPTICAL/ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Symbol	Units	Min	Typical	Max
Emission Wavelength	T_o=30°C, @ 8mA	λ_c	nm	-	993	-
Variation of Wavelength with Temperature	-	$\frac{\Delta\lambda}{\Delta T}$	$nm/°C$	-	0.072	-
Variation of Wavelength with current	-	$\frac{\Delta\lambda}{\Delta I}$	nm/mA	-	0.25	-
Spectral Width [a]	T_o=-40°C, @ 8mA	σ_λ	nm	-	-	1.00
	T_o=85°C, @ 8mA					
Threshold Current [b]	T_o=-40°C, 85˚C	I_{th}	mA	-	-	1.00
Average Operating Current	T_o=85°C	I_{avg}	mA	-	8	-
Operating Voltage	T_o=-40°C @ 5mA	V_o	V	-	-	2.75
	T_o=85°C@ 8mA			-	2.00	-
Optical Output Power	T_o=-40°C, @ 5mA	P_o	mW	2.0	-	-
	T_o=85°C, @ 8mA					
Small Signal Bandwidth [c]	T_o=25°C, @ 6mA	f_{3dB}	GHz	13	-	-
	T_o=85°C, @ 8mA			-	10.5	-
Relative Intensity Noise [d]	T_o=85°C @ 8mA	RIN_{12}	dB/Hz	-	-	-128
Beam Divergence Half Angle ($1/e^2$) [e]	T_o =30°C, @ 6mA	$\theta_{1/2}$	deg	-	16	19
Slope Efficiency [f]	T_o =-40°C	SE	mW/mA	-	0.45	-
	T_o =85°C			-	0.30	-
Differential Resistance [g]	T_o =-40˚C @ 5mA	R_{diff}	Ω	-	100	-
	T_o =85˚C @ 8mA			-	70	-

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PARAMETER CALCULATION METHODS USED

a. Spectral width is calculated based on FOTP-127 where the spectral level of the measured spectra below 20dB from maximum value are made zero and RMS spectral width is calculated based on formula

$$\Delta\lambda_{RMS} = \sqrt{\frac{\sum_{i=1}^{N} P_i \lambda_i^2}{\sum_{i=1}^{N} P_i}} - \left(\frac{\sum_{i=1}^{N} P_i \lambda_i}{\sum_{i=1}^{N} P_i}\right)^2$$

where 'λ_i' is the wavelength and 'P_i' is the optical power level of the i_{th} point in the spectra.

b. The threshold current is derived by a linear fit method using 10% and 20% of peak optical power points. Threshold current is the point at which the optical power is zero using the linear fit.

c. The small signal bandwidth is obtained from optical response measurements at set current and reading the cut off frequency at which the power level is 3dB down from the power level at DC.

d. Relative intensity noise: RIN_{12} is the DC-RIN measured with -12dB return. The DC-RIN is measured using an electrical spectrum analyzer with resolution bandwidth set to 1MHz, calibrated photodetector and broad-band amplifiers. The RIN per unit bandwidth is calculated using the formula,

$$RIN\left(\frac{dB}{Hz}\right) = RIN\ [dBm] - 10log_{10}\left(I_p^2 R_m\right)[dBm] - A\ [dB] - 10log_{10}(\Delta f\ [GHz])$$

where 'RIN' is the peak RIN on electrical spectrum analyzer with resolution bandwidth 'Δf', 'I_p' is the measured photocurrent, 'R_m' is the input resistance of measurement system, and 'A' is the amplification.

e. Beam divergence half-angle is derived from measurement of optical power in far-field at various angles. The half-angle is the angular deviation from center where the power reduces by '1/e'.

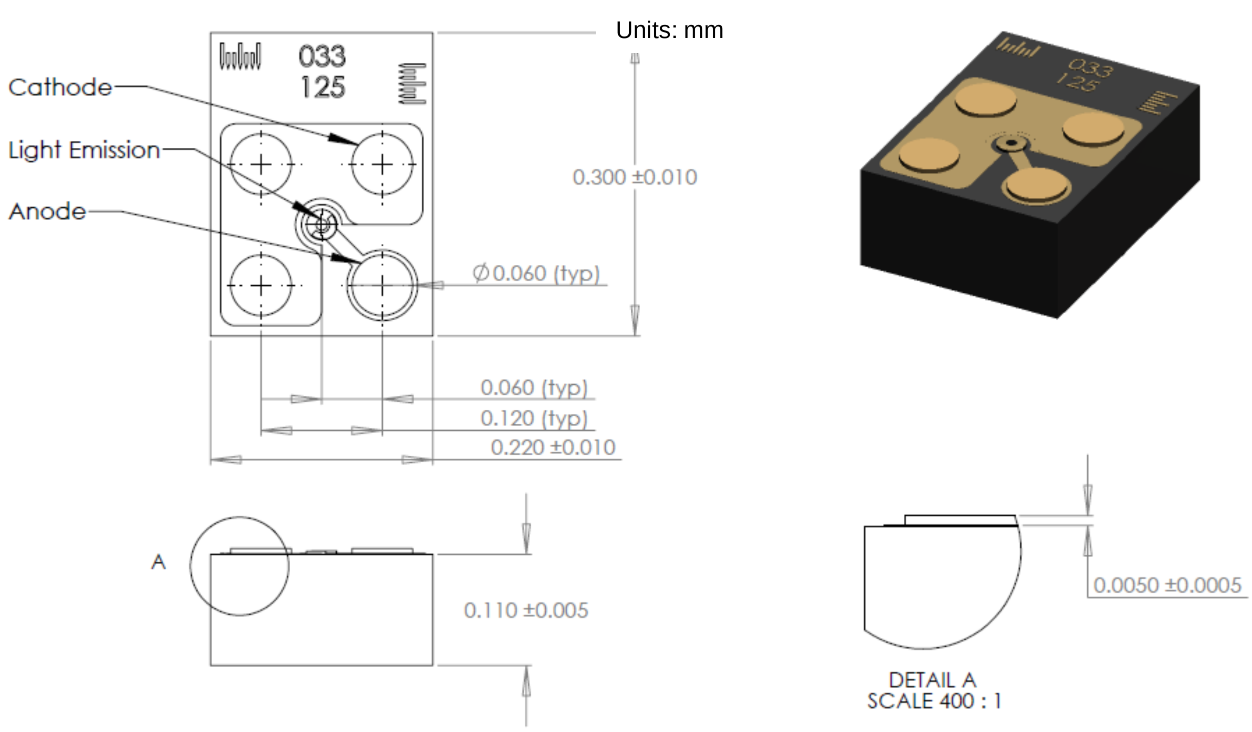
f. The slope efficiency is derived by linear fit method using 10% and 20% of peak optical power points. Slope efficiency is the slope of the lineal fit of optical power and drive current.

g. Differential resistance at point *'i'* of the measured LIV is calculated based on formula,

$$R_{diff} = \frac{V_i - V_{i-1}}{I_i - I_{i-1}}$$

where 'V_i', 'V_{i-1}' are the measured voltages at set currents 'I_i' and 'I_{i-1}' respectively.

MECHANICAL OUTLINE



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